External Quality Assurance (EQA) of G6PD Quantitative Test

Survey No. : RH2021-01 Sample sent on : 2021/02/22 Reporting deadline : 2021/03/01

Sample sent : 29 set Results reported (%) : 29 (100%)

Summary Report of G6PD and Hemoglobin (Hb) Quantitative Test Results

Lab	Referral Hosp.	Report (day)	G6PD Reagent Code	Sample 1				Sample 2				Sample 3				Hb 1	Hb 2	Hb 3
				(U/gHb)	*D%*	*z* score	SDI	(U/gHb)	*D%*	*z* score	SDI	(U/gHb)	*D%*	*z* score	SDI	(g/dL)	(g/dL)	(g/dL)
F02	F02	4	5	5.4	0.0%	0.0	0.3	8.0	0.0%	0.0	0.0	15.5	2.6%	0.4	0.6	2.1	1.8	1.8
F03	F03	6	5	5.5	1.9%	0.3	0.7	7.9	-1.3%	-0.2	-0.2	15.0	-0.7%	-0.1	-0.1	2.1	1.8	1.8
F04	F04	6	5	5.2	-3.7%	-0.5	-0.3	7.9	-1.3%	-0.2	-0.2	15.0	-0.7%	-0.1	-0.1	2.3	2.0	2.0
F05	F05	6	5	5.3	-1.9%	-0.3	0.0	7.4	-7.5%	-1.1	-1.4	14.6	-3.3%	-0.5	-0.7	2.1	1.8	1.8
F07	F07	7	5	5.1	-5.6%	-0.8	-0.7	7.4	-7.5%	-1.1	-1.4	14.0	-7.3%	-1.0	-1.6	2.3	2.0	2.0
F09	F09	8	5	5.6	3.7%	0.5	1.0	8.6	7.5%	1.1	1.4	16.0	6.0%	0.9	1.3	2.1	1.8	1.7
F10	F10	4	5	5.0	-7.4%	-1.1	-1.0	7.4	-7.5%	-1.1	-1.4	14.4	-4.6%	-0.7	-1.0	2.1	1.8	1.8
F11	F11	5	5	5.3	-1.9%	-0.3	0.0	7.9	-1.3%	-0.2	-0.2	15.1	0.0%	0.0	0.0	2.2	2.0	1.9
F12	F12	7	5	5.4	0.0%	0.0	0.3	8.2	2.5%	0.4	0.5	15.2	0.7%	0.1	0.1	2.2	1.9	1.9
F13	F13	6	5	5.2	-3.7%	-0.5	-0.3	7.7	-3.8%	-0.5	-0.7	14.9	-1.3%	-0.2	-0.3	2.0	1.8	1.8
F14	F14	7	5	5.1	-5.6%	-0.8	-0.7	8.1	1.3%	0.2	0.2	14.7	-2.6%	-0.4	-0.6	2.1	1.8	1.8
F15	F15	7	5	5.4	0.0%	0.0	0.3	7.9	-1.3%	-0.2	-0.2	15.2	0.7%	0.1	0.1	2.2	2.0	2.0
F17	F17	5	5	5.5	1.9%	0.3	0.7	8.1	1.3%	0.2	0.2	15.3	1.3%	0.2	0.3	2.1	1.8	1.8
F18	F18	4	5	5.3	-1.9%	-0.3	0.0	8.4	5.0%	0.7	1.0	15.1	0.0%	0.0	0.0	2.0	2.0	2.0
F19	F19	4	5	5.8	7.4%	1.1	1.7	8.1	1.3%	0.2	0.2	15.8	4.6%	0.7	1.0	2.1	1.8	1.8
F20	F20	6	5	5.4	0.0%	0.0	0.3	8.0	0.0%	0.0	0.0	15.0	-0.7%	-0.1	-0.1	2.0	1.8	1.8
F21	F21	7	5	5.0	-7.4%	-1.1	-1.0	7.8	-2.5%	-0.4	-0.5	14.9	-1.3%	-0.2	-0.3	2.0	1.7	1.8
F22	F22	6	5	4.9	-9.3%	-1.3	-1.4	7.7	-3.8%	-0.5	-0.7	14.0	-7.3%	-1.0	-1.6	2.2	1.7	1.8
F24	F24	7	5	5.6	3.7%	0.5	1.0	8.5	6.3%	0.9	1.2	16.1	6.6%	0.9	1.5	2.0	1.8	1.8
F25	F25	7	5	5.4	0.0%	0.0	0.3	8.0	0.0%	0.0	0.0	15.0	-0.7%	-0.1	-0.1	2.1	1.9	1.9
F26	F26	8	5	4.6	-14.8%	-2.1	-2.4	6.8	-15.0%	-2.1	-2.9	13.3	-11.9%	-1.7	-2.7	2.1	1.8	1.8
F27	F27	4	5	5.8	7.4%	1.1	1.7	9.1	13.8%	2.0	2.6	17.6	16.6%	2.4	3.7	2.0	1.7	1.7
F28	F28	8	5	5.8	7.4%	1.1	1.7	8.5	6.3%	0.9	1.2	15.9	5.3%	0.8	1.2	2.2	1.9	1.8
F29	F29	7	5	5.1	-5.6%	-0.8	-0.7	7.6	-5.0%	-0.7	-1.0	14.9	-1.3%	-0.2	-0.3	2.4	2.1	2.2
F30	F30	6	5	5.4	0.0%	0.0	0.3	7.9	-1.3%	-0.2	-0.2	15.6	3.3%	0.5	0.7	2.0	1.8	1.7
F31	F31	4	5	5.3	-1.9%	-0.3	0.0	8.3	3.8%	0.5	0.7	15.4	2.0%	0.3	0.4	2.3	1.8	1.8
F32	F32	5	5	5.4	0.0%	0.0	0.3	8.0	0.0%	0.0	0.0	15.3	1.3%	0.2	0.3	2.1	1.8	1.8
F33	F33	8	5	4.4	-18.5%	-2.6	-3.1	7.3	-8.8%	-1.3	-1.7	10.9	-27.8%	-4.0	-6.3	2.2	2.2	2.2
F34	F34	3	5	5.5	1.9%	0.3	0.7	8.1	1.3%	0.2	0.2	15.4	2.0%	0.3	0.4	2.1	1.9	1.8
Total participating laboratories = 29																		
Xa (Median)	-	6	-	5.4				8.0				15.1				2.1	1.8	1.8
u_{Xa}	-	-	-	0.059				0.086				0.137				-	-	-
σ_p	-	-	-	0.378				0.560				1.057				-	-	-
σ_p'	-	-	-	-				-				-				-	-	-
Range	-	3-8	-	4.4-5.8				6.8-9.1				10.9-17.6				2.0-2.4	1.7-2.2	1.7-2.2
n	-	-	-	29				29				29				29	29	29
Mean	-	-	-	5.3				8.0				15.1				2.1	1.8	1.8
S.D.	-	-	-	0.29				0.42				0.67				0.11	0.00	0.00
C.V.	-	-	-	5.5%				5.3%				4.4%				5.2%	0.0%	0.0%

Note:

1. *D%* = [(X - Xa) / Xa] x 100% ; X = Your Results , Xa = Assigned value
2. u_{Xa} = uncertainty of the assigned value. $u_{Xa} = 1.1 \times SD / n^{1/2}$
3. SD for proficiency assessment (σ_p) = 7% x Xa ; but while Xa < 2.9 U/gHb, σ_p = 0.2 U/gHb
4. Adjusted SD for proficiency assessment (σ_p') = ($\sigma_p^2 + u_{Xa}^2$)$^{1/2}$. σ_p' is used for proficiency assessment when $u_{Xa} \geq 0.3\sigma_p$
5. *z* score = D / σ_p ; D = X - Xa, σ_p = SD for proficiency assessment
6. SDI = (X - Mean) / SD ; SD = standard deviation of peer group ; SDI is not calculated when SD equals 0
7. The assigned value (Xa) is the **median** of all the results reported of this EQA sample
8. Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528
9. The evaluation criteria for measurement result of each specimen : Acceptable : | *z* | <= 2; Caution : 2 < | *z* | <= 3; Unsatisfactory : | *z* | > 3

Reagent Kit	G6PD Reagent Code	Lab
Medicon	5	F02, F03, F04, F05, F07, F09, F10, F11, F12, F13, F14, F15, F17, F18, F19, F20, F21, F22, F24, F25, F26, F27, F28, F29, F30, F31, F32, F33, F34

Long Term Observation of Blood G6PD Quantitative Test EQA Survey Results

Survey No : RH2021-01 (in green)

- Total participants' CV result ploted against surveys

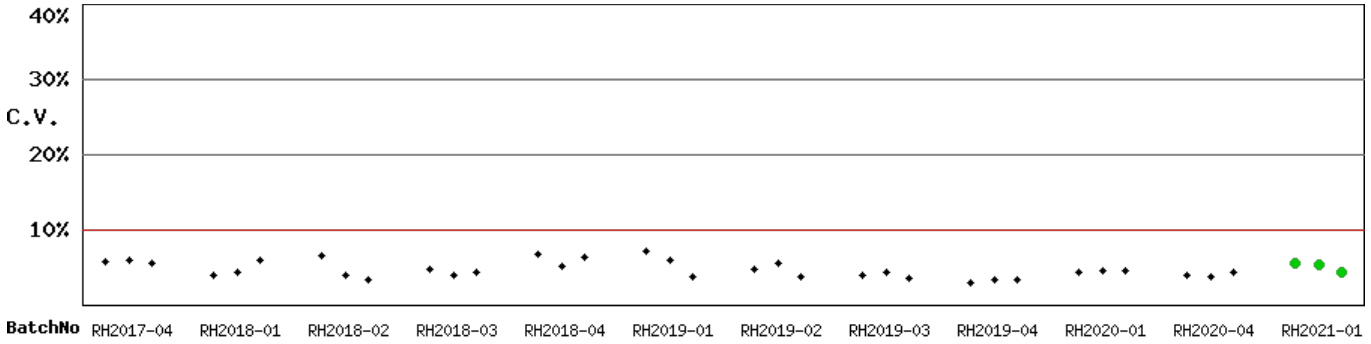

Fig RH-2.1

- Total participants' CV result ploted against G6PD activities

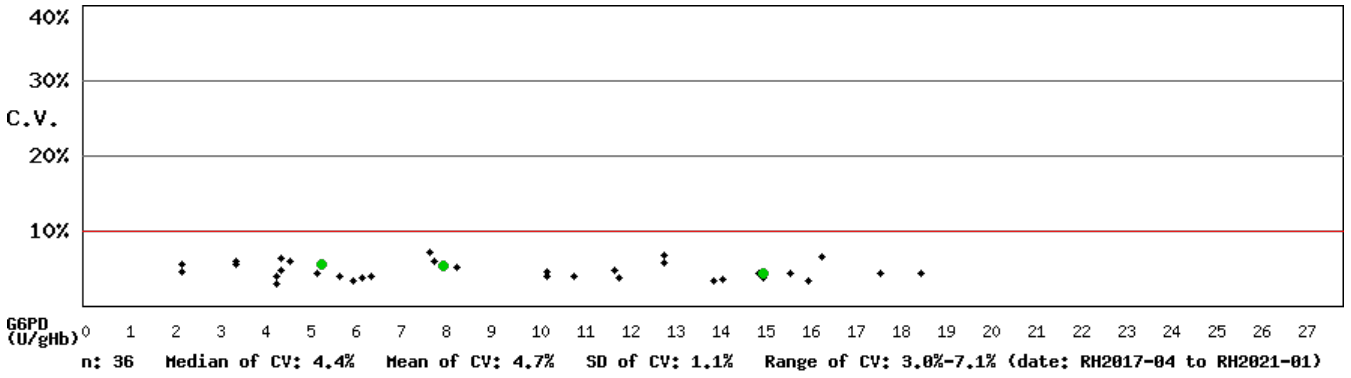

Fig RH-2.2

* Mean and SD are calculated by Robust method according to ISO 13528 since 2014

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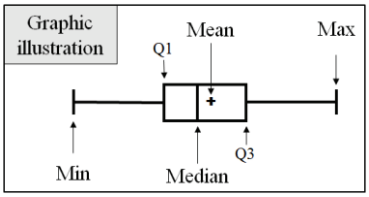
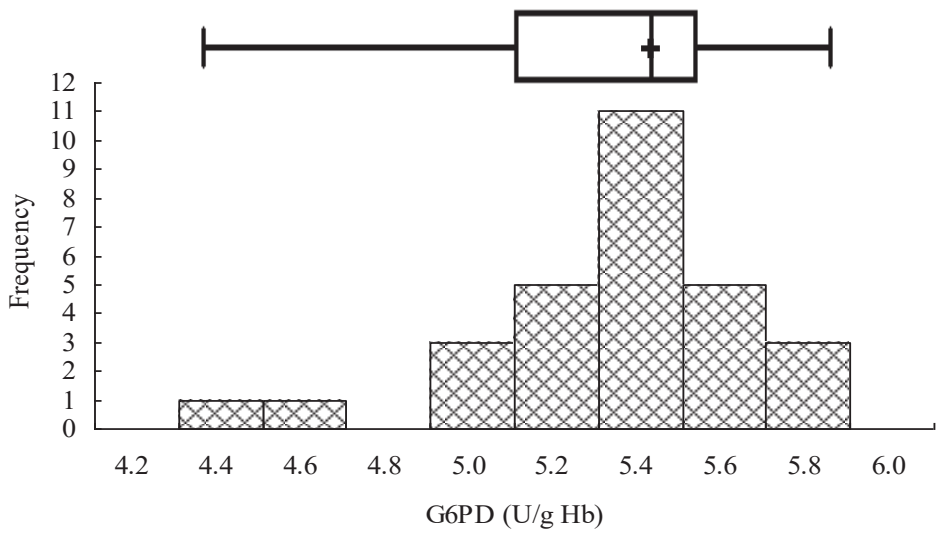
RH2021-01 Distribution of G6PD Test Results

Survey No. : RH2021-01 Sample sent on : 2021/02/22 Reporting deadline : 2021/03/01

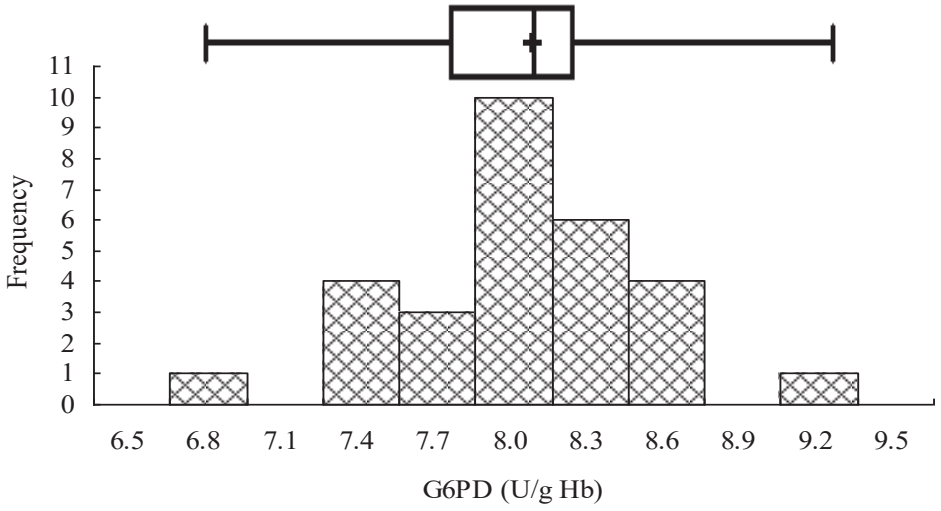
Results reported (%) : 100%





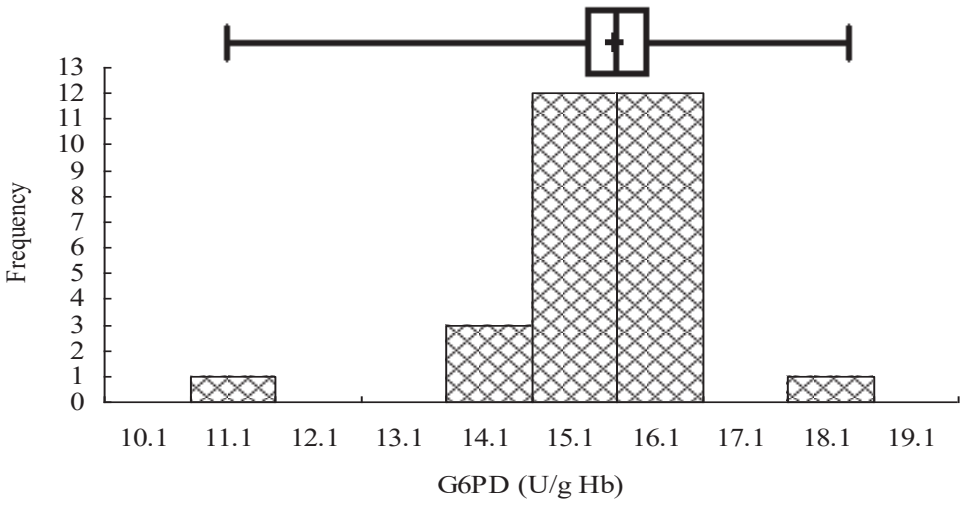
Sample 1

Median = 5.4 (n = 29)
Mean* = 5.3 (n = 29)
SD* = 0.29
CV = 5.5%



Sample 2

Median = 8.0 (n = 29)
Mean* = 8.0 (n = 29)
SD* = 0.42
CV = 5.3%



Sample 3

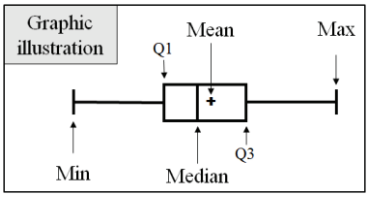
Median = 15.1 (n = 29)
Mean* = 15.1 (n = 29)
SD* = 0.67
CV = 4.4%

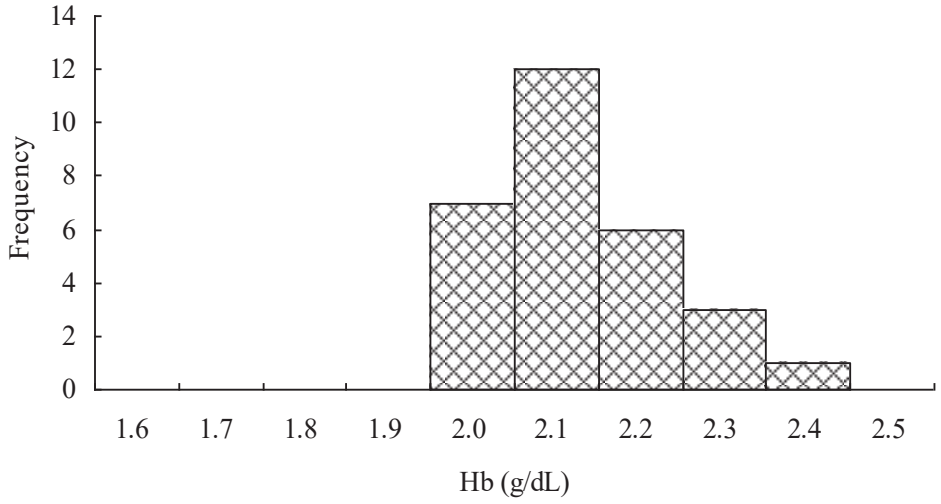
*Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528

RH2021-01 Distribution of Hb Test Results

Survey No. : RH2021-01 Sample sent on : 2021/02/22 Reporting deadline : 2021/03/01

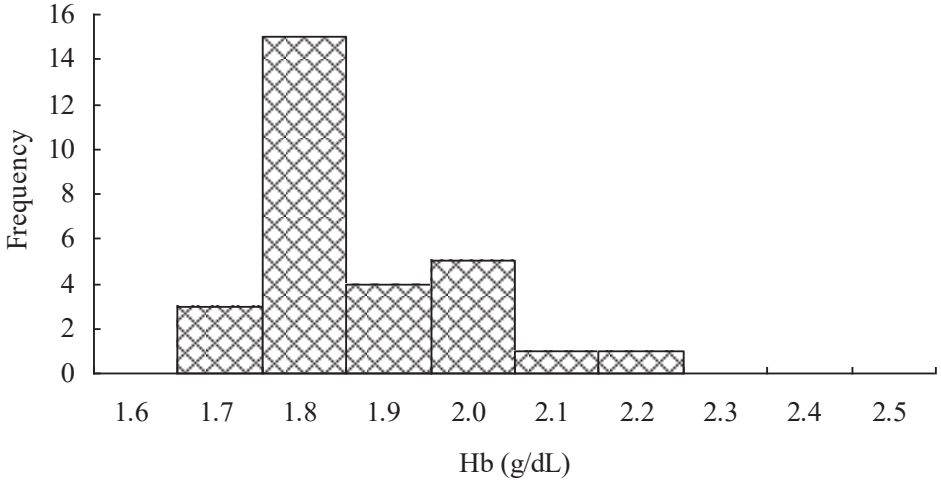
Results reported (%) : 100%





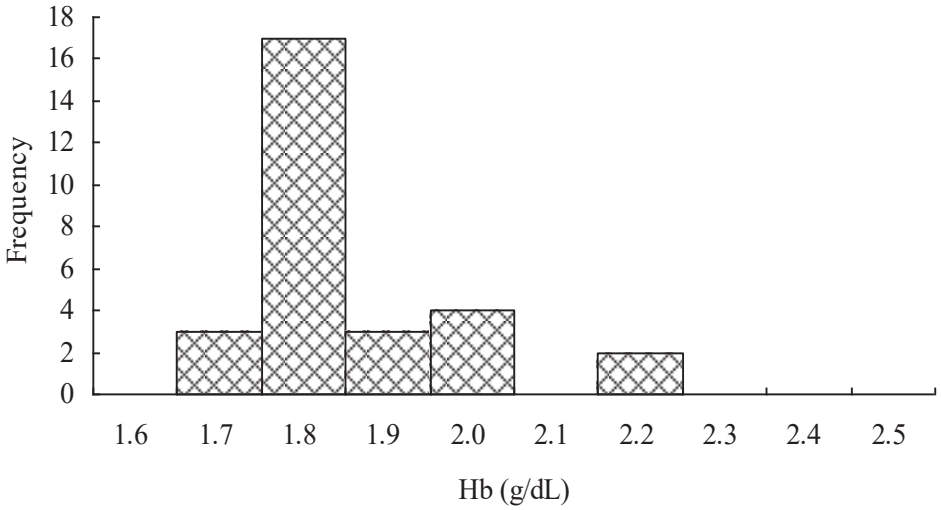
Sample 1

Median = 2.1 (n = 29)
Mean* = 2.1 (n = 29)
SD* = 0.11
CV = 5.2%



Sample 2

Median = 1.8 (n = 29)
Mean* = 1.8 (n = 29)
SD* = 0.00
CV = 0.0%



Sample 3

Median = 1.8 (n = 29)
Mean* = 1.8 (n = 29)
SD* = 0.00
CV = 0.0%

*Robust results (Mean and SD) were calculated by Algorithm A according to ISO 13528